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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,862	09/11/2003	Huy Nguyen	9797-133-999	8974
38426	7590	11/18/2004	EXAMINER	
MORGAN LEWIS & BOCKIUS LLP/RAMBUS INC. 2 PALO ALTO SQUARE 3000 EL CAMINO REAL PALO ALTO, CA 94306			NGUYEN, HAI L	
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/661,862

Applicant(s)

NGUYEN ET AL.

Examiner

Hai L. Nguyen

Art/Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 18, 19, 26-46 is/are rejected.
- 7) ☒ Claim(s) 6-17 and 20-25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/25/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. Claim 1 is objected to because of the following informalities: on line 3, "--;--" should be inserted at the end of the line.
2. Claim 39 is objected to because of the following informalities: on line 5, "a" should be changed to --the--.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 26-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 is indefinite because of the recited limitations "signals of a specific signaling type, the specific signaling type having a predetermined duty cycle; and a second circuit coupled to the first circuit, the second circuit comprising: a pre-driver; a plurality of registers coupled to the pre-driver, each register configured to store a value suitable for configuring the pre-driver to generate an output signal with a duty cycle of one of a plurality of signaling types", on lines 3-9. It is unclear because it cannot be determined whether "signals of a specific signaling type" and "a plurality of signaling types" are the same or different signals.

Claims 27-38 are rendered indefinite by the deficiencies of base claim 26.

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5. Claims 26 and 29-38 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the comparator (306 in instant Fig. 3), the common mode detector (304), and the feed back line of the output signal through those elements. In order for the pre-driver generate an output signal with the predetermined duty cycle in accordance with the output value from the selected register, the comparator and the common mode detector need to be included in the claims (see page 6, line 25 through page 7).

Claims 29-38 are rejected due to their dependencies on claim 26.

6. The term "substantially equal" in claim 39 is a relative term which renders the claim indefinite. The term "substantially equal" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Therefore, the term "substantially equal" is indefinite for the same reason "relatively shallow" was held to be indefinite by the Board of Appeals, i.e., it is not clear what applicant intends to cover by the term "substantially equal" when referring to a pre-driver to generate an output signal with a duty cycle substantially equal to the duty cycle to the duty cycle of the respective signaling type corresponding to the value stored in the selected register. See *Ex parte Oetiker*, 23 USPQ2d 641 (Bd. Pat. App & Inter. 1992). MPEP § 2173.05(b).

Claims 40-46 are rendered indefinite by the deficiencies of base claim 39.

7. Claims 39-46 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: Sending a signal from the driver and receiving the signal at a

detector (402 in instant Fig.4), and determining duty cycle imbalance (404). In order for the pre-driver can generating an output signal with a duty cycle “substantially equal” to the duty cycle of the respective signaling type corresponding to the value stored in the selected register (see page 6, line 25 through page 7, and page 11 through page 12, lines 1-10).

Claims 40-46 are rejected due to their dependencies on claim 39.

### *Claim Rejections - 35 USC § 102*

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-5, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Uehara et al. (US Pat. 5,491,440).

With regard to claims 1 and 18, Uehara et al. discloses in Figs. 1&5 a circuit, and a method of generating an output signal with a predetermined duty cycle, comprising a driver (24) that generates an output signal (14); a detector (3) configured to determine a common mode voltage of the output signal; a comparator (4) configured to compare the common mode voltage of the output signal to a reference voltage for a predetermined duty cycle; a register (5) configured to store a value indicative of a difference between the common mode voltage of the output signal and the reference voltage (11); and a pre-driver (22) coupled to the register, the pre-driver configured to receive a signal derived at least in part from the value stored in the register and to send the output signal to the driver, wherein the value stored in the register causes

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the common mode voltage of the output signal to change so as to decrease the difference between the common mode voltage of the output signal and the reference voltage.

With regard to claims 2-5 and 19, the references also meet the recited limitations in these claims.

*Allowable Subject Matter*

10. Claims 6-17, and 20-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 27 and 28 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art of record fails to disclose or fairly suggest a specific structural limitations, and a method of generating an output signal with a predetermined duty cycle, as recited in claims 6, 9, and 20, such as a digital-to-analog converter (332, 334 in instant Fig. 3) coupled between the register (320, 322) and the pre-driver (324), and being configured in combination with the rest of the limitations of the base claims and any intervening claims.

The prior art of record fails to disclose or fairly suggest a specific structural limitations, and a method of generating an output signal with a predetermined duty cycle, as recited in claims 10 and 21, such as a plurality of registers (312 in instant Fig. 3) coupled to the comparator (306), each of the registers configured to store a value that configures the pre-driver (324) to generate an output signal for a respective duty cycle of respective one of a plurality of signal types (RSL,

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SSTL, YL) in combination with the rest of the limitations of the base claims and any intervening claims.

The prior art of record fails to disclose or fairly suggest a specific structural limitations, and a method of generating an output signal with a predetermined duty cycle, as recited in claims 11 and 22, such as an input configured to receive an externally provided value (336 in instant Fig. 3), and adjustment combining logic (316) configured to combine the externally provided value and the value (DCA value) stored in the register (312) to produce an adjusted value; wherein the signal received by the pre-driver (324) corresponds to the adjusted value, and being configured in combination with the rest of the limitations of the base claims and any intervening claims.

The prior art of record fails to disclose or fairly suggest a specific structural limitations, and a method of generating an output signal with a predetermined duty cycle, as recited in claims 12, 17, 23, and 25, such as a process/voltage/temperature (PVT) detector (216 in instant Fig. 2), and adjustment combining logic (214) configured to combine a value from the PVT detector and the value stored in the register (212) to produce an adjusted value; wherein the signal received by the pre-driver (202) corresponds to the adjusted value, and being configured in combination with the rest of the limitations of the base claims and any intervening claims.

The prior art of record fails to disclose or fairly suggest a system, as recited in claim 27, a first circuit (308 in instant Fig. 3) configured to receive signals of a specific signaling type (RSL, SSTL, YL), the specific signaling type having a predetermined duty cycle; and a second circuit coupled to the first circuit, the second circuit comprising a driver (302); a detector (304) configured determine a common mode voltage of the output signal; a comparator (306)



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configured to compare the common mode voltage of the output signal to a reference voltage for the duty cycle of selected signaling type of the plurality of signaling types; and specifically a specific structural limitations as the plurality of registers (312) coupled to the comparator, each respective register of the plurality of registers storing a value indicative of a difference between the common mode voltage of the output signal and a respective reference voltage for the duty cycle of a respective one of the plurality of signaling types, a pre-driver (324); a plurality of registers (320, 322) coupled to the pre-driver, each register configured to store a value suitable for configuring the pre-driver to generate an output signal with a duty cycle of one of a plurality of signaling types; and a selector (313) coupled to the plurality of registers, the selector configured to select one of the plurality of registers so as to output the value stored in the selected register; wherein the pre-driver is configured in accordance with the output value from the selected register so as to generate an output signal with the predetermined duty cycle.

### *Conclusion*

12. Regarding claims 26, 29-46, the patentability thereof cannot be determined because of their indefiniteness.
13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. For example, Nguyen (US Pat. 6,788,120) is cited as of interest because it discloses a counter-based duty cycle correction systems and methods circuit.
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai L. Nguyen whose telephone number is 571-272-1747 and



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Right Fax number is 571-273-1747. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The official fax phone number for the organization where this application or proceeding is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1562.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HLN   
November 8, 2004

  
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